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(FILE 'HOME' ENTERED AT 13:28:42 ON 24 JUL 2002)

FILE 'CAPLUS, EMBASE, BIOSIS, MEDLINE, WPIDS' ENTERED AT 13:28:50 ON 24 JUL 2002

L1 2858 S (POLYMER? OR POLYCARBONAT?) (3A) (FILM? OR LID? OR COVER?) (15A)  
L2 2620 S L1 AND (LAMINATE? OR FILM? OR MONOFILM? OR COMPOSITE?)  
L3 2591 S L1 (20A) (LAMINATE? OR FILM? OR MONOFILM? OR COMPOSITE?)  
L4 333 S L3 AND POLYCARBONAT?  
L5 1 S L4 AND (SELECTIV?) (5A) (GAS?)  
L6 20577 S (PERMEABL? OR PERMEABIL?) (3A) (FILM? OR SHEET? OR LAMINATE?)  
L7 7 S L4 AND L6  
L8 7 DUP REM L7 (0 DUPLICATES REMOVED)  
L9 24308 S (PERMEABL? OR PERMEABIL?) (3A) (FILM? OR SHEET? OR LAMINATE? OR  
L10 36 S L1 AND L9  
L11 34 DUP REM L10 (2 DUPLICATES REMOVED)  
L12 1 S L11 AND ARRAY?  
L13 31 S L1 AND ARRAY?  
L14 31 DUP REM L13 (0 DUPLICATES REMOVED)  
L15 6580 S (MICROTITER) (2A) (PLATE)  
L16 7 S L15 AND L1  
L17 5 DUP REM L16 (2 DUPLICATES REMOVED)  
L18 6 S L1(10A) (MICROARRAY? OR ARRAY? OR NANOARRAY?)  
L19 6 DUP REM L18 (0 DUPLICATES REMOVED)  
L20 17798 S (SELF) (2A) (ASSEMB?) (2A) (MONOLAYER?) OR OR SAMS  
L21 6 S L20 (10A) (POLYCARBONAT?)  
L22 6 DUP REM L21 (0 DUPLICATES REMOVED)

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L17 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1

AN 2000:338414 CAPLUS

DN 133:161397

TI Optical detection of polycations via **polymer film**  
-modified **microtiter plates**: response mechanism and  
bioanalytical applications

AU Dai, Sheng; Ye, Qingshan; Wang, Enju; Meyerhoff, Mark E.

CS Department of Chemistry, The University of Michigan, Ann Arbor, MI,  
48109-1055, USA

SO Analytical Chemistry (2000), 72(14), 3142-3149

CODEN: ANCHAM; ISSN: 0003-2700

PB American Chemical Society

DT Journal

LA English

AB **Microtiter plate** wells modified with thin (.apprx.20  
.mu.m) **polymeric films** capable of optically sensing  
macromol. protamine and other polycationic species are described. The  
plates are prepd. by coating the bottom of each well of a conventional  
96-well polypropylene **plate** with an adherent **polymer**  
**film** (a mixt. of poly(vinyl chloride) and polyurethane) contg. a  
lipophilic 2',7'-dichlorofluorescein deriv. Surprisingly, optical  
response toward polycations is shown to result from the extn. of the  
fluorescein deriv. from the polymer film into a lyophobic colloidal phase  
at the sample/film interface. This new phase is likely composed of a  
micellar-type ion pair complex between the analyte polycation from aq.  
sample phase and the deprotonated form of the fluorescein deriv.  
Accumulation of the deprotonated fluorescein species in this interfacial  
region induces an absorbance change measured at 540 nm. Optimized plates  
can be used to sense protamine concns. in the range of 0-100 .mu.g/mL in  
10 min with little or no response to physiol. levels of common cationic  
species (Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, etc.). The modified plates are shown to be useful  
as simple optical detectors for measuring heparin levels in plasma via  
titrns. with protamine and for monitoring protease activities (trypsin and  
plasmin) that cleave polycationic peptides/proteins such as protamine into  
smaller peptide fragments that are not detected by the sensing films.  
Assays for "clot busting" plasminogen activators (streptokinase,  
urokinase, and tissue plasminogen activator) are also demonstrated using  
this relatively simple **microtiter plate**-based  
polycation detection system.

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L17 ANSWER 2 OF 5 WPIDS (C) 2002 THOMSON DERWENT  
 AN 2000-225108 [20] WPIDS  
 DNN N2000-168663 DNC C2000-068908  
 TI Surface modification of **microtiter plates**, useful in  
 chemical assays, immunoassays or drug screening assays, comprises forming  
 insoluble **polymer film**.  
 DC A89 B04 D16 J04 S03  
 IN GANNA, E; PANASYUK, T; PILETSKA, O; PILETSKY, S; SCHEDLER, U; SERGEYEVA,  
 T; ULBRICHT, M  
 PA (POLY-N) POLY-AN GMBH  
 CYC 1  
 PI DE 19832598 A1 20000309 (200020)\* 11p  
 DE 19832598 C2 20020214 (200211)  
 ADT DE 19832598 A1 DE 1998-19832598 19980709; DE 19832598 C2 DE 1998-19832598  
 19980709  
 PRAI DE 1998-19832598 19980709  
 AB DE 19832598 A UPAB: 20000426

NOVELTY - Method for modifying the surface of microtiter plates comprises  
 chemical or photochemical grafting, radical or ionic polymerization or  
 polymer crosslinking, including molecular impact polymerization, to form a  
 stable insoluble film that can be used to monitor the formation and/or  
 conversion of substances in solution and/or on the surface of the  
**microtiter plate**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the  
 following: (1) a method for determining the pH of samples by contacting  
 them with the modified **microtiter plates** and measuring  
 the light absorption of the **polymer film**; (2) a method  
 for determining substances in contact with the modified **microtiter  
 plates**, in which one or more enzymes, receptors, antibodies or  
 cells are immobilized on the polymer surface, comprising measuring the  
 change in the optical properties of the polymer film caused by a  
 protonation/deprotonation or redox reaction in the course of the  
 binding and/or catalytic conversion of the substances; (3) an  
 enzyme-linked immunosorbent assay (ELISA) method in which the antibodies,  
 receptors or antigens immobilized on the **microtiter  
 plate** surface are replaced by molecular impact polymers (MIPs);  
 (4) a drug screening method in which the receptors or ligands immobilized  
 on the **microtiter plate** surface are replaced by MIPs;  
 (5) an ELISA method in which antibodies, receptors or antigens are  
 immobilized on the surface of the modified microtiter plates; (6) an assay  
 based on the modified microtiter plates in which a change in absorption  
 spectrum (wavelength), radioactivity, fluorescence, phosphorescence,  
 chemiluminescence or bioluminescence is used for quantitative  
 determination; (7) a method for monitoring cell cultures, comprising  
 measuring pH, substrate concentration or metabolite concentration with the  
 modified microtiter plates; (8) a method for surface modification of  
 optical elements (fibers or films) by chemical or photochemical grafting,  
 radical or ionic polymerization or polymer crosslinking, including  
 molecular impact polymerization, to form a stable insoluble film that can  
 be used to monitor the formation and/or conversion of substances in  
 solution and/or on the surface of the optical element; and (9) use of the  
 polymer-modified optical elements of (8) in sensors.

USE - The modified microtiter plates are useful in: (1) a method for  
 determining the pH of samples by contacting them with the modified  
**microtiter plates** and measuring the light absorption of  
 the **polymer film**; (2) a method for determining  
 substances in contact with the modified **microtiter  
 plates**, in which one or more enzymes, receptors, antibodies or  
 cells are immobilized on the polymer surface, comprising measuring the  
 change in the optical properties of the polymer film caused by a  
 protonation/deprotonation or redox reaction in the course of the

binding and/or catalytic conversion of the substances; (3) an enzyme-linked immunosorbent assay (ELISA) method in which the antibodies, receptors or antigens immobilized on the **microtiter plate** surface are replaced by molecular impact polymers (MIPs); (4) a drug screening method in which the receptors or ligands immobilized on the **microtiter plate** surface are replaced by MIPs; (5) an ELISA method in which antibodies, receptors or antigens are immobilized on the surface of the modified microtiter plates; (6) an assay in which a change in absorption spectrum (wavelength), radioactivity, fluorescence, phosphorescence, chemiluminescence or bioluminescence is used for quantitative determination; and (7) a method for monitoring cell cultures, comprising measuring pH, substrate concentration or metabolite concentration with the modified microtiter plates.

Dwg.0/4

TI Surface modification of **microtiter plates**, useful in chemical assays, immunoassays or drug screening assays, comprises forming insoluble **polymer film**.

AB . . . .  
that can be used to monitor the formation and/or conversion of substances in solution and/or on the surface of the **microtiter plate**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) a method for determining the pH of samples by contacting them with the modified **microtiter plates** and measuring the light absorption of the **polymer film**; (2) a method for determining substances in contact with the modified **microtiter plates**, in which one or more enzymes, receptors, antibodies or cells are immobilized on the polymer surface, comprising measuring the change. . . of the substances; (3) an enzyme-linked immunosorbent assay (ELISA) method in which the antibodies, receptors or antigens immobilized on the **microtiter plate** surface are replaced by molecular impact polymers (MIPs); (4) a drug screening method in which the receptors or ligands immobilized on the **microtiter plate** surface are replaced by MIPs; (5) an ELISA method in which antibodies, receptors or antigens are immobilized on the surface. . . microtiter plates are useful in: (1) a method for determining the pH of samples by contacting them with the modified **microtiter plates** and measuring the light absorption of the **polymer film**; (2) a method for determining substances in contact with the modified **microtiter plates**, in which one or more enzymes, receptors, antibodies or cells are immobilized on the polymer surface, comprising measuring the change. . . of the substances; (3) an enzyme-linked immunosorbent assay (ELISA) method in which the antibodies, receptors or antigens immobilized on the **microtiter plate** surface are replaced by molecular impact polymers (MIPs); (4) a drug screening method in which the receptors or ligands immobilized on the **microtiter plate** surface are replaced by MIPs; (5) an ELISA method in which antibodies, receptors or antigens are immobilized on the surface. . .

TT TT: SURFACE MODIFIED **PLATE** USEFUL CHEMICAL ASSAY IMMUNOASSAY  
DRUG SCREEN ASSAY COMPRISE FORMING INSOLUBLE **POLYMER FILM**.

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